

Annex F

Investigation Report

Investigation Report of CEMS Exceedances

Date	1 - 31 March 2023
Time	Continuous monitoring throughout March 2023
Monitoring Location	Continuous Environmental Monitoring System (CEMS)
Parameter	Various emission parameters of the Centralised Air Pollution Unit (CAPCS), Cogeneration Units (CHP), Ammonia Stripping Plant (ASP) and Standby Flaring Gas Unit
Exceedance Description	<p>1. Continuous monitoring was carried out at the CAPCS, CHP, ASP and Standby Flaring Gas Unit throughout the reporting period using the CEMS. According to the EM&A Manual, exceedance is considered if the emission concentration of the concerned pollutants is higher than the emission limits stated in Tables 2.2, 2.3, 2.4 and 2.5 of the EM&A Manual (Version F) for CAPCS, CHP, ASP and Standby Flaring Gas Unit respectively. The concentration of the concerned air pollutants were monitored on-line by the CEMS. Exceedances of various emission parameters were recorded on the CEMS including:</p> <ul style="list-style-type: none"> • VOCs (including methane) from CAPCS; • NO_x and SO₂ from the CHPs; • NO_x, SO₂, NH₃ and HCl from ASP; and • HF from Standby Flaring Gas Unit. <p>2. The Contractor is still investigating the cause of the exceedances of VOCs (including methane) from CAPCS</p> <p>3. The Contractor has investigated the cause of the exceedance and identified that</p> <ul style="list-style-type: none"> • The exceedances of SO₂ from the CHPs and ASP occurred due to tripping of the de-sulphurisation system resulted from the residue of sulphur accumulated at the exhaust heat exchangers. • The exceedances of NO_x from CHPs, NO_x, NH₃ and HCl from ASP and HF from Standby Flaring Gas Unit occurred due to system instability caused by prolonged usage of the CHPs, ASP and Standby Flaring Gas Unit.
Action Taken / Action to be Taken	The sample on CAPCS stack for VOC testing was taken on 29 March 2023 for investigating the cause of the exceedances of VOCs (including methane) from CAPCS. The Contractor has arranged cleaning of the heat exchangers of all CHPs to remove potential sulphur residue from the exhaust gas system. The Contractor has also replaced all catalytic convertors with an aim to improve the CO removal efficiency of the system.
Remedial Works and Follow-up Actions	The Contractor has arranged a specialist to review the CEMS system performance and accuracy. The specialist will carry out in-depth investigation and propose any remediation needed. The reason for CAPCS exceedance is still under investigation by the Contractor. This investigation report will be updated once available.

OSCAR Bioenergy Joint Venture
EP/SP/61/10 – Organic Resources Recovery Centre Phase 1

Prepared by: Chris Ng, MT Representative
Date 23 April 2023

Investigation Report of Discharged Sample Exceedances

Date	9 March 2023
Time	The monitoring of the discharge sample of the Outlet Chamber of the Effluent Storage Tank
Monitoring Location	Outlet Chamber of the Effluent Storage Tank
Parameter	Total Nitrogen
Exceedance Description	<ol style="list-style-type: none"> 1. According to EM&A Manual, the monitoring of the effluent discharge from the outlet chamber of the Effluent Storage Tank shall be carried out monthly under Section 21 of the Water Pollution Control Ordinance (WPCO) license. Exceedance is considered if the concentration of discharged effluent sample from the Interceptors is higher than the discharge limits stated in Part B2 of the WPCO. Exceedances of discharge parameter was recorded on the monitoring of effluent discharge from the outlet chamber of the Effluent Storage Tank including: <ul style="list-style-type: none"> • Total Nitrogen 2. The Contractor has investigated the cause of the exceedance and found that <ul style="list-style-type: none"> • The exceedances of Total Nitrogen from the effluent discharge from the outlet chamber of Effluent Storage Tank occurred due to an unexpected surge of Kjeldahl Nitrogen in Treated Effluent and leading to high Total Nitrogen in Treated Effluent sampled on 9 March 2023.
Action Taken / Action to be Taken	The Contractor investigated the reason for the exceedance. It was found that the reason for the exceedances of Total Nitrogen was due to an unexpected surge of Kjeldahl Nitrogen in the Treated Effluent sample.
Remedial Works and Follow-up Actions	The Contractors will further arrange a longer aeration in SBR and a monitoring of settlement, to prevent further high nitrogen content entering Treated Effluent Tank and discharge to DSD, to make sure the discharge effluents complies with the discharge limit.

Prepared by: Chris Ng, MT Representative

Date: 23 April 2023